



EM PROGRESS

RECLAIMING THE PAST TO SECURE THE FUTURE

A REPORT FROM THE U.S. DEPARTMENT OF ENERGY'S OFFICE OF ENVIRONMENTAL MANAGEMENT

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“Headed in the Right Direction”

A Message from Assistant Secretary Roberson

EM's mission is based on a simple premise. We must accelerate cleanup and reduce risk.

The Top-to-Bottom Review provided us with the tools to do so: an accelerated, risk-based cleanup strategy; improvements in contract management; realignment of the Department's internal processes; and the elimination or transfer of activities that do not directly support EM's mission. We knew that implementing the Top-to-Bottom Review findings and recommendations was going to be difficult, and it has been. However, we have made tremendous progress already.



With help from local stakeholders, 18 sites have already completed draft Performance Management Plans to accelerate cleanup. These plans detail current site conditions, the expected end state, strategic initiatives to get from the current conditions to the end state, and management processes to support the new risk management and accelerated cleanup approach.

Over the past few months, I have been traveling around the country and visiting many of our sites. I have been impressed with the spirit of cooperation in developing the Performance Management Plans; stakeholders, regulating agencies and the Department of Energy have all been working together to put our best foot forward.

I have been impressed with the many cleanup activities undertaken in the past year. In this issue of *EM Progress*, we have highlighted just a few of these across the complex. I am sure you will agree with me that we are headed in the right direction.

Jessie Hill Roberson
Assistant Secretary for Environmental Management

Success at West Valley:

Nation's First Vitrification Program Completed Successfully

On August 14, 2002, six years after the West Valley Demonstration Project (WVDP) filled its first stainless steel canister of high-level radioactive waste glass, the final canister was filled with the last stream of glass to be poured from the melter. This is the first vitrification program in the nation to be successfully completed. The completion of this program demonstrates EM's drive to reduce risk across the complex.

During its operation, the WVDP melter exceeded worldwide efficiency expectations and successfully solidified the high-level liquid radioactive waste from the underground tank at the country's only former commercial nuclear fuel reprocessing facility.

The WVDP officially completed its vitrification program on September 5, 2002, when the glass melter was shut down and the melter cavity cleaned by direct removal of the remaining molten glass.

Two evacuated canisters were placed in the vitrification cell to “vacuum” the remaining molten glass from the

Success at West Valley, continued on page 2

IN THIS ISSUE...

Risk Reduction at Oak Ridge	3
Accelerating Cleanup at INEEL	5
Hanford Kicks Off the Cleanup Race	7
Bioremediation Cleanup at SRS.....	8
NTS Provides Linchpin in Cleanup Effort	9
Fernald's Race to Closure	10
Rocky Flats Technology Successes	12



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Long-Term Surveillance and Maintenance Under Way at Weldon Spring

The Department of Energy (DOE), the Environmental Protection Agency (EPA), and the Missouri Department of Natural Resources (MDNR) continue to make progress toward long-term stewardship at the Weldon Spring site. Active remediation of surface contamination is complete. The site closed in Fiscal Year 2002.

To ensure long-term protection of human health and the environment, DOE, in conjunction with EPA, MDNR, and citizens that live in the Weldon Spring area, is in the process of developing a long-term stewardship plan. The draft plan, describing the surveillance and maintenance activities required at the site, is currently being revised to reflect comments provided by stakeholders and regulators. The long-term surveillance and monitoring activities currently under way at the Weldon Spring site include:

- ground water monitoring;
- closure of monitoring wells that are no longer needed;
- collection, treatment, and disposal of leachate from the disposal cell;
- periodic maintenance of the disposal cell;
- erosion control of areas surrounding the cell;
- monitoring and enforcement of institutional and land use controls; and,
- maintaining the records needed to sustain knowledge of the site.

Ground water monitoring will continue at the Weldon Spring site in accordance with the existing ground water monitoring plan established under the provisions of previous regulatory agreements. Changes to ground water monitoring, based on the final Record of Decision for ground water expected in 2003, will be

incorporated into the site's long-term surveillance and maintenance activities.

DOE is proud of the cleanup effort at the Weldon Spring site. It is a tribute to the workers at the site and the positive relationships developed between DOE, the EPA, the U.S. Army, the State of Missouri, St. Charles County, the Weldon Spring Citizens Commission and other interested citizens.

DOE's Weldon Spring Site recently celebrated the dedication of the new Interpretive Center that outlines the history of the Site. To take a virtual tour of the newly opened Interpretive Center, visit the Weldon Spring Web site at www.wssrap.com. For more information about ongoing activities at Weldon Spring, visit the Grand Junction Office's Web site at



Ribbon-cutting ceremony of the new Weldon Spring Interpretive Center. Left to right: Pamela Thompson, DOE Site Manager; Paul Mydler, Vice-Chair, Weldon Spring Citizens Commission; and Jessie Roberson, DOE Assistant Secretary for EM, participated in the opening of the new educational Interpretive Center.

www.doejpo.com. The Grand Junction Office has oversight of stewardship activities at Weldon Spring.

Success at West Valley, continued from page 1

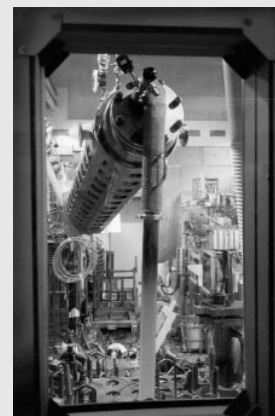
melter feed cavity. This marks the first deployment of an evacuated canister for radioactive glass processing.

Waste pretreatment operations and testing of the nonradioactive vitrification system were conducted in the 1980s; the full-scale system was constructed by 1995 and radioactive operations begin in 1996. Since that time, the WVDP vitrification team's accomplishments included:

- production of 275 glass-filled, stainless steel canisters (each canister with an average dose rate of 2,700 R/hour and 86,000 curies);
- immobilization of 24 million curies of radioactive waste; and
- extraction of all of the removable radioactive inventory from the underground high-level waste tanks.

Alice Williams, DOE-Ohio/WVDP Director, said, "It is rewarding to know that what we designed, started and operated has now been successfully completed. It is a great success story for DOE."

For more information, contact Bryan Bower at bryan.c.bower@wv.doe.gov.



Evacuated canisters were deployed at the WVDP to remove the remaining material from the vitrification melter on September 5, 2002. This is the first vitrification program to be completed in the U.S.

Vast Cleanup at Oak Ridge

Over the past year, the Oak Ridge site has been working hard to clean up waste and reduce risk from the nuclear weapons production program. After signing a Letter of Intent late this spring and developing a Performance Management Plan to accelerate cleanup, the site has moved forward aggressively with cleanup plans and has surpassed a number of milestones, reducing or eliminating some of the highest risks already.

Mercury Falling

Surface water leaving the Oak Ridge Reservation is no longer carrying unacceptable amounts of mercury, thanks to a new phase of cleanup of mercury residues in the soils, sediments and surface water of the East Fork Poplar Creek at the Y-12 National Security Complex in Oak Ridge, Tennessee.

The Y-12 plant used millions of pounds of mercury to separate isotopes of lithium to produce nuclear weapons at the site. Despite measures to contain spills, mercury was released into Upper East Fork Poplar Creek and into the environment.

Under a Record of Decision (ROD) recently signed by the Department of

Energy, the Tennessee Department of Environment and Conservation, and the Environmental Protection Agency, several actions will be taken to further reduce mercury residue that continues to seep into the creek.

"Considering the historical use of mercury at the Y-12 facility, it is encouraging that the level of mercury in surface water leaving the plant now is well below drinking water standards," said DOE project manager John Michael Japp. He added that the future cleanup action is planned to reduce mercury concentrations by an additional 50 percent or more in order to eliminate unacceptable accumulations of mercury in fish and other aquatic life.

This phase will be completed in approximately 2010 at an anticipated cost of \$38 million.

Future cleanup will address remaining soil and surface water contamination at Y-12, as well as ground water contamination and the decontamination and decommissioning of excess facilities.

For more information, contact John Michael Japp on (865) 241-6344.

No Bones About It

Cleanup workers haven't found any real bones, but they have excavated and disposed of thousands of cubic yards of contaminated material from the site known as "Boneyard/Burnyard" near the Y-12 National Security Complex. The site is one of the Oak Ridge Reservation's oldest waste disposal areas. Fieldwork is scheduled for completion by the end of December.

"This project has exceeded all performance goals we established, while being done safely," said DOE Project Manager Jason Darby. "The entire team, from the regulators to equipment operators, made this possible. I think the Boneyard/Burnyard will be an excellent model to follow



In foreground, backfilling the excavation with clean soil; in background, excavating and loading contaminated material for disposal.

as we move into the accelerated cleanup and closure efforts here in Oak Ridge."

"Boneyard" refers to abandoned equipment and non-combustible construction material that was left on the site and that eventually resulted in surface contamination. "Burnyard" refers to the past burning of uranium turnings and other combustible materials in unlined trenches. Once the trenches were filled, they were covered with dirt and compacted. The site also includes an area for disposal of hazardous chemicals that was capped in 1989.

The current phase of the cleanup includes excavation of the waste material with the highest concentrations of uranium contamination (approximately 70,000 cubic yards) and disposal of that material in the newly constructed Environmental Management Waste Management Facility (see Summer 2002 *EM Progress*).

For more information, contact Jason Darby on (865) 241-6343.

On the One-Yard Line

At Oak Ridge's East Tennessee Technology Park (ETTP), DOE and its

Vast Cleanup at Oak Ridge, continued on page 4



Upper East Fork Poplar Creek begins at Outfall 200, pictured here, and runs through the Y-12 National Security Complex. The first of several planned Records of Decision will address mercury contamination in the creek.

*Vast Cleanup at Oak Ridge, continued
from page 3*

contractor, BNFL Inc., are nearing a touchdown in the world of environmental cleanup: completing what could be the largest environmental cleanup effort of its kind in the world.

DOE and BNFL are dismantling, removing and disposing of all process equipment and material and decontaminating the interior of three of DOE's five large gaseous diffusion plant (GDP) buildings at ETPP.

The three GDP buildings measure 4.8 million square feet and contain 328.7 million pounds of material. More than 60 percent of the work there is complete. The project is currently scheduled for completion by August 2004.

"It's hard to understand the magnitude of the work that's being done here without seeing it," said John Christian, BNFL's



ETTP Three-Building D&D and Recycle Project Typical K-33 Cell Floor – Before Photo



ETTP Three-Building D&D and Recycle Project Typical K-33 Cell Floor – After Photo

vice president. "The largest building we're working on, building K-33, has 64 acres of floor space. You could literally house 30 football fields or two U.S. automotive plants on just one of its two floors."

At the peak of its material removal work in K-33, 900 workers were clearing out 6,000 square feet of space a day and two million pounds of material a week. So far, 167.1 million pounds of material have been shipped offsite for disposal.

For more information, contact Jack Howard on (865) 576-5982.

Accelerating into the Valley

The U.S. Department of Energy has begun a major effort to reduce risk and clean up the Melton Valley Watershed, an area of the Oak Ridge Reservation that was used for radioactive waste disposal for more than 50 years. The project will be completed in 2006 at a cost of approximately \$275 million—a savings of approximately \$85 million and completion 10 years sooner than earlier projections.

The Watershed contains burial grounds, liquid waste seepage pits and trenches, and experimental facilities associated with research and development activities at Oak Ridge National Laboratory.

"A combination of remedial actions such as containment, stabilization, removal, treatment, monitoring and land-use controls will be used to address these problems," said Lab Team Leader David Adler.

The Melton Valley Watershed Record of Decision, signed in 2000 by DOE, the State of Tennessee and the Environmental Protection Agency, outlines the cleanup actions, including cleanup of most of three Solid Waste Storage Areas. These former waste sites are the primary contributors to offsite spread of contaminants.

"The actions outlined in the Record of Decision are the same as they were before the accelerated cleanup plan," Adler added. "But under the accelerated cleanup plan, we will accomplish it much sooner at a significantly lower cost."

The accelerated decontamination and decommissioning of the Melton Valley Watershed is an example of the steps the EM program is taking to eliminate and mitigate risk to the environment and the public.

For more information, contact David Adler on (865) 576-4094.



The final phase of the Metal Recovery Facility D&D Project was the demolition of the hot cell structures. Workers spray water during the demolition to suppress any dust.

Accelerating Cleanup is the Way of the Future at INEEL

Over the past year, the Idaho National Engineering and Environmental Laboratory (INEEL) has continued to demonstrate its commitment to accelerating cleanup and reducing risk. The site has teamed with the Environmental Protection Agency and the State of Idaho to establish a focused vision for the accelerated cleanup strategy and is already meeting milestones.

Spent Nuclear Fuel and Special Nuclear Materials Travel to Oak Ridge and INTEC

The INEEL recently moved spent nuclear fuel from wet to dry storage and shipped special nuclear material offsite to other DOE facilities.

The site completed the last of 42 transfers of spent nuclear fuel and fuel remnants stored in the canal of the Materials Test Reactor. The reactor canal will now undergo decontamination and decommissioning.

Crews also completed moving the last of the spent nuclear fuel from wet storage pools at the Test Area North into three dry storage casks and placed them on a storage pad.

Under the INEEL's Accelerated Cleanup Plan, these spent nuclear fuel dry storage casks will be transferred to the Idaho Nuclear Technology and Engineering Center (INTEC) by 2005. All spent nuclear fuel at INEEL will be transferred to dry storage by 2012, eleven years ahead of the Idaho Settlement Agreement milestone. Dry storage of spent nuclear fuel reduces the risk of corrosion and leakage into the environment.

Additionally, unirradiated nuclear fuel (special nuclear material) managed by the INEEL was shipped to Oak Ridge National Laboratory this year. Special nuclear material is being consolidated from around the complex to reduce the risk of storage at a number of different locations. Under the INEEL's Accelerated Cleanup Plan, special nuclear material managed by the Environmental Management Program at the INEEL will be shipped offsite by 2009, 35 years ahead of the old plan. Nonetheless, EM is evaluating opportunities to further accelerate this schedule.

As part of EM's goal to reduce highest risks early at sites with ongoing missions, INEEL has surpassed expectations by eliminating and mitigating risk to workers, the public and the environment. Disposing of special nuclear materials offsite and moving spent nuclear fuel from water basins to safer dry storage are two of the significant goals listed in EM's Top-to-Bottom Review.

For more information visit the INEEL's Web page at www.inel.gov/environment or contact Stacey Francis on (208) 526-0075 or at syf@inel.gov.

Mixed Waste Heads to Utah

The INEEL has completed several important milestones for offsite treatment and disposal of its mixed wastes. Treatment and disposal of these "legacy" wastes are reducing the risk to workers and the environment at a pace ahead of schedule and are saving money that can be used for other cleanup projects.

During the past two years, more than 1,150 cubic meters of mixed waste (waste containing radioactive and hazardous materials) has been sent offsite for treatment and disposal. This year, 350 cubic

meters (the equivalent of 1,680 55-gallon drums) of legacy waste were shipped to other DOE and commercial treatment facilities in the United States. The treated waste was then disposed of at the Enviro-care of Utah permitted disposal facility in Clive, Utah.

Both the INEEL Mixed Waste Storage Facility and the Test Area North waste storage facility were completely emptied of waste through these efforts. The storage facilities are now available for other missions.

Through the treatment efforts and additional waste repackaging and consolidation, the legacy mixed waste inventory at INEEL has dropped from 3,570 cubic meters two years ago to 1,900 cubic meters today. Under the INEEL's accelerated cleanup initiative, treatment and disposal of the remaining legacy waste will be completed by the end of 2004—two years earlier than planned. By that time, the INEEL will have reduced six waste storage facilities to one.

For more information visit the INEEL's Web page at www.inel.gov/environment or, contact John Walsh on (208) 526-8646 or at jhw@inel.gov.

INEEL Environmental Restoration Program FY 02 Milestones

The Environmental Restoration team took major strides toward final cleanup of contaminated sites at the INEEL during Fiscal Year 2002 (FY 02).

By pushing forward on cleanup projects, workers were able to make significant reductions in risks posed by past contamination at INEEL facilities. Cleanup of this contamination is being conducted under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) — also known as Super-

Accelerating Cleanup, continued on page 6

Accelerating Cleanup, continued from page 5

fund. By reducing the number of unneeded buildings at the INEEL, money that would otherwise have gone toward upkeep of those buildings can now be applied to cleanup operations.

Construction was completed on the first cell and evaporation pond of the INEEL CERCLA Disposal Facility, a modern landfill designed to contain contaminated soil and other debris resulting from INEEL cleanup operations. The landfill employs a high-tech liner system with a leak detection and leachate removal system to protect the aquifer far below.

At the Radioactive Waste Management Complex (RWMC), construction began four months ahead of the Settlement Agreement schedule on the Pit 9 Glovebox Excavator Method project. Excavation of waste buried in a portion of the one-acre Pit 9 could begin as early as September 2003, and will provide valuable information that will be applied to the upcoming decisions on how to remediate the rest of Pit 9 and the Subsurface Disposal Area at the RWMC.

Another cleanup action is under way at the Subsurface Disposal Area. The Organic Contamination in the Vadose Zone project literally vacuums solvent vapors that have escaped from waste buried in the subsurface. The vapors are brought to the surface and destroyed using thermal and catalytic processes. Since the beginning of operations in January 1996, more than 123,600 lbs. of these contaminants have been removed and destroyed, including more than 77,900 lbs. of carbon tetrachloride. Mass removal for FY 02 is approximately 27,000 lbs. of organic contaminants, including 16,000 lbs. of carbon tetrachloride.

The closure of 43 buildings during FY 02 reduced the amount of INEEL site infrastructure requiring funding. Currently, more than 40 percent of the INEEL's cleanup funding is for maintaining site

infrastructure. The number of closures exceeded the original goal of 34 buildings and eliminated more than 202,000 square feet. This saved about \$2.8 million in maintenance and operations that could be applied to other projects.

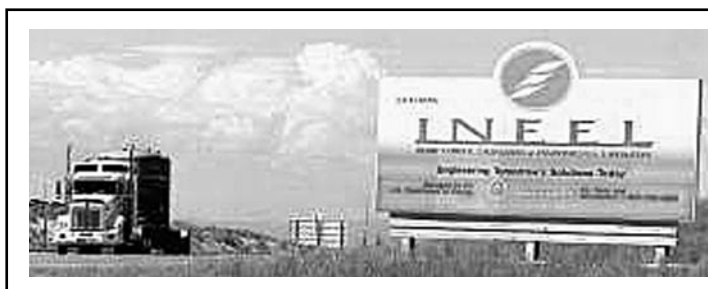
3100 cubic meters of TRU waste arrives at WIPP

The final shipment of 3,100 cubic meters of transuranic waste left INEEL two months ahead of schedule and safely arrived at the Waste Isolation Pilot Plant. Removal of this transuranic waste, roughly 15,000 55-gallon drums, was a commitment in the court-ordered Idaho Settlement Agreement signed by DOE,

the State of Idaho and the U.S. Navy in 1995.

"Moving waste out of Idaho is an important step forward for INEEL employees and the citizens of Idaho, but also for the Department," Secretary of Energy Spencer Abraham said. "We could not have achieved this very important milestone without the strong support of the Governor and the entire Idaho congressional delegation. It proves that working together we can meet our commitments and cleanup goals. There is more work to be done and more goals to reach and we can accomplish these objectives by moving forward with our accelerated cleanup programs in Idaho and other states."

For more information, visit the INEEL's Web site at www.inel.gov/environment or contact Joseph Campbell on (208) 526-3183 or at campjl@inel.gov.



A truck carrying TRUPACT-II shipping containers departs INEEL.

Environmental Management Advisory Board Meets

The Environmental Management Advisory Board (EMAB) met November 20-21, 2002, in Washington, DC. The agenda included briefings by Assistant Secretary Roberson and EM senior officials on implementation of the Top-to-Bottom Review and the special project teams as well as a discussion of prioritizing key issues. The next meeting will be in the Spring of 2003.

EMAB is chartered under the Federal Advisory Committee Act to provide advice, information and recommenda-

tions to the Assistant Secretary for EM regarding corporate issues. Serving on the Board are Mr. James A. Ajello, Reliant Energy Solutions, Chair; Dr. Raymond Loehr, University of Texas; Mr. John Moran, Consultant; Mr. John Quarles, Morgan, Lewis and Bockius LLP; Ms. Jennifer Salisbury, Western Governors Association; and Mr. Thomas Winston, Ohio Environmental Protection Agency.

For more information, contact James Melillo at james.melillo@em.doe.gov.

Hanford Reduces Risk and Accelerates Cleanup

In March, when the Department of Energy entered into an agreement with the State of Washington Department of Ecology and the Environmental Protection Agency to accelerate cleanup, they meant, “accelerate” cleanup. The site has been very busy over the past year, especially regarding spent nuclear fuel and is attacking some of the most difficult problems early.

Spent Nuclear Fuel Moves Away from the River

Hanford has successfully moved all of the spent nuclear fuel (SNF) from the 324 Building to the Interim Storage Area pad near the Canister Storage Building. This achievement is a significant step

for Hanford’s mission of eliminating risk by moving waste away from the Columbia River.

The SNF removed from the 324 Building is about 650,000 curies which is equivalent to approximately four multi-canister overpacks of K Basins spent fuel. It is Hanford’s fourth largest collection of SNF, but still represents less than one percent of all the spent fuel at the site. The removal of the SNF leaves less than 200,000 curies in the 324 building.

The building’s cleanout has removed nearly 10 million curies of radioactivity.

For more information, contact Maritsa Collantes at Maritsa_Collantes@rl.gov.

Waste Consolidation Begins

Workers at Hanford are successfully drying and removing spent nuclear fuel stored underwater at Hanford’s T-Plant, paving the way for radioactive sludge from the Site’s K Basins to be moved into T-Plant in 2003.

The fuel and sludge moves are part of the DOE’s goal to consolidate wastes and special nuclear materials in the center of the Hanford Site, away from the Columbia River.

Fuel from the Shippingport Reactor is being placed into tall, specially engineered stainless steel containers known as Shippingport Spent Fuel Canisters. These, in turn, are placed inside nuclear-grade shipping casks and shipped to the Canister Storage Building in the center of the Site. There, the canisters will be stored in steel tubes beneath the facility. The 72 Shippingport fuel assemblies will be dried and moved in 18 shipments.

The Shippingport facility, opened in 1958 as a joint venture between the Atomic Energy Commission and a private company, was the nation’s first electric utility powered by nuclear energy.

For more information, contact Maritsa Collantes at Maritsa_Collantes@rl.gov.

Hanford Tank Partnership Formalized

DOE’s Pacific Northwest National Laboratory and the CH2M Hill Hanford Group, Inc. have signed a memorandum of agreement on science and technology integration in support of Hanford tank cleanup and closure. The agreement establishes a co-led Technology Integration Program responsible for managing all aspects of technology identification, development, and planning.

Four key areas of emphasis in this collaboration are:

- Providing technical support to projects;
- Coordinating external research and development interfaces with other DOE sites and national laboratories, universities, and industry;
- Planning, analysis and risk reduction; and
- Establishing the scientific basis for closing a waste tank.

The Office of River Protection is responsible for disposing of approximately 53 million gallons of radioactive and hazardous waste stored in 177 underground tanks. Technology integration is especially critical within the new framework of accelerated cleanup at Hanford, and various technology options are being considered to supplement current plans for tank waste treatment.

For more information, contact Geoff Tyree at Geoffrey_T_Tyree@rl.gov.



The NAC-1 Cask is handled in the Cask Handling Area where it is checked for leaks and welded.

SRS R&D Area Closes after Serving Its Purpose

For more than fifty years, the TNX area played an integral role in the development and testing of processes,

facilities, and equipment for the Savannah River Site (SRS).



For more than a half century, TNX area played an integral role in the development and testing of processes, facilities and equipment for various Savannah River Site programs. The TNX facilities have been shut down and are now waiting final decommissioning. (WSRC Photo)

TNX was among the first areas constructed and included the first research facility to develop the technology for the SRS reactors and separations processes. The area is now closed, awaiting complete dismantlement by Fiscal Year 2006

as part of the site's accelerated cleanup program.

At one time, the TNX area had more than 30 buildings used for large-scale demonstration projects, analytical and research laboratories, pilot scale facilities, warehouses, and support facilities.

In 1999, DOE decided to shut down the TNX facilities to save operating and support costs.

The initial phase of closure removed 14 office trailers and 22 portable buildings. More than 800 glass canisters used during the building of the Defense Waste Processing facility were removed. Approximately \$3 million of equipment, parts and material were returned for Site reuse. All the furniture, equipment, ceiling tiles, insulation, light fixtures, fire extinguishers, and carpeting were removed from the portable buildings. Four additional buildings were dismantled and sold to a local economic development organization called the Tri-County Alliance.

For more information, contact Bill Taylor at Bill-doe.taylor@srs.gov.

Bioremediation Research May Speed Cleanup at Savannah River

Two research laboratories at the Savannah River Site (SRS) are undertaking a study to better understand how scientists can encourage certain bacteria to produce more of a type of melanin, which could then be used to clean up metals and radionuclides in the environment.

The study begins from the knowledge that a group of bacteria commonly found in subsurface soils produce melanin,

which is similar to the pigment found in humans, other animals and plants. This melanin has been shown to accelerate the rate at which microbes isolate metals and radionuclides in the soil. Researchers hope to stimulate the bacteria to produce more melanin by providing them with certain nutrients. That in turn could speed up the rate at which metals and

radionuclides currently in the environment are detoxified and/or immobilized.

The first year of the work will involve understanding to what degree the bacteria rely on melanin for metal transformations.

The Savannah River Technology Center (SRS's applied research and development laboratory) and the Savannah River Ecology Laboratory (operated by the University of Georgia), along with the Oak Ridge National Laboratory in Tennessee, will participate in the study.

For more information, contact Bill Taylor at Bill-doe.taylor@srs.gov.

SRS Continues Role of Good Neighbor

The potential environmental impact of the Savannah River Site (SRS) on the offsite public remains low, according to the 2001 SRS Environmental Report. Compliance with environmental regulations and with DOE orders related to environmental protection provides assurance that onsite processes do not adversely affect the environment.

The largest radiation dose that any single offsite individual could have received from SRS operations in 2001 is estimated to be 0.18 millirem, compared with a natural average dose of about 300 millirem to people in the United States.

Effluent monitoring and environmental surveillance were conducted extensively

within a 2000-square-mile network reaching 25 miles from SRS – with some monitoring performed as far as 100 miles from the site. Thousands of samples of air, rainwater, surface water, drinking water, ground water, food products, wildlife, soil, sediment and vegetation were collected and analyzed for radioactive and nonradioactive contaminants.

For more information, contact Bill Taylor at Bill-doe.taylor@srs.gov.

NTS Supports Accelerated Cleanup of DOE Sites

The Nevada Test Site (NTS) is playing a pivotal role in accelerated cleanup and risk reduction of the nuclear weapons complex by disposing more than 2.3 million cubic feet of low-level waste from around the U.S. Department of Energy complex in fiscal year (FY) 2002—almost quadrupling the amount of low-level waste disposed in FY 2000.

This large volume of waste, which equates to a football field four stories high, was generated by cleanup activities at DOE nuclear weapons development and testing sites across the United States. The NTS is one of these generators as well as one of two regional disposal sites.

The ability to ship waste to the NTS is critical for generators to meet accelerated cleanup schedules. Key components of the Accelerated Cleanup Program are a Record of Decision that allows the NTS to approve new generators, and an innovative approach to waste generator volume projection and disposal fees that has resulted in a more efficient disposal process. This translates into accelerated cleanup activities at Rocky Flats Environmental Technology Site and the East Tennessee Technology Park (K-25) facility at Oak Ridge, Tennessee. With the increase in disposal volumes, the cost of disposal has been significantly reduced. Complex

disposal volumes at the NTS are estimated to reach four million cubic feet in FY 2003.

An important element of the disposal process is the safe transportation of materials to Nevada. More than 6,300 shipments of low-level waste have been transported to the NTS without an accident. Stakeholder interests play an important role in the transportation of low-level waste. For example, commercial carriers that transport the waste use specific routes based upon agreements between DOE and Nevada. In order to continue shipping their waste to the NTS, waste generators are held accountable if carriers use

routes that cross at Hoover Dam or go through Las Vegas.

Prior to sending the waste to the NTS, the generators must certify that the waste meets the requirements contained in the NTS Waste Acceptance Criteria. Upon arrival at the NTS, waste is disposed in a manner that protects the public, workers, and the environment. This focus on safety translates into no lost-time accidents since 1995.

Without NTS's dedication to maintaining safe operations and providing crucial disposal capabilities, cleaning up the DOE complex would be dramatically more difficult. NTS provides the disposal facilities that allow many of the sites to reduce their waste legacy and eventually close.

For more information, contact Jhon Carilli on (702) 295-0672.



Workers position a low-level waste package into a disposal cell at the Area 5 Radioactive Waste Management Site at the Nevada Test Site.



Low-level waste is "stair-stacked" in a disposal cell at the Area 5 Radioactive Waste Management Site. Low-level waste disposal cells are covered with native soil as the cell is filled. However, five rows of waste are always exposed.

Fernald's Race to Closure

When Fernald drafted its Performance Management Plan in July, the site reiterated its goal to achieve closure by 2006 safely, at the lowest possible cost to the taxpayer, and in compliance with regulatory requirements and stakeholder expectations. Over the past year, new restoration efforts have been undertaken to clean up the site for future use, buildings have been cleaned up and demolished, and safety records have been set.

Acceleration Creates New Wetlands Habitat

Working with engineers and cleanup crews, ecologists at the U.S. Department of Energy's Fernald site are converting excavated and perimeter areas into restored ecological communities using simple, inexpensive restoration techniques.

To meet regulatory cleanup levels, Fernald will excavate 2.2 million cubic yards of contaminated soil from the 1,050-acre site, resulting in both shallow and deep, sloping depressions, many 20 to 30 feet deep.

Ecologists are taking advantage of the numerous depressions and the high clay content in the soil, which together present optimal conditions for the creation of new wetlands. In one project, after removing contaminated debris from a



Ecologist John Homer and labor supervisor Sonny Youngblood discuss the success of using existing excavations to expand the floodplain and wooded corridor along a nearby stream.

two-acre area, workers exposed a shallow basin. To maximize water retention, ecologists graded the basin, placed a large brush pile in the center, and seeded the area with native wetland grasses and other plants, creating an ideal habitat for nesting and migrating waterfowl, as well as amphibians and other aquatic organisms. From start to finish, Fernald completed the restoration in about one month, with no disruption to the cleanup schedule.

Earlier this year, Fernald initiated the first major restoration project in a remediated area. Using existing depressions made during the excavation of over 400,000 cubic yards of contaminated soil and debris, ecologists are creating an additional floodplain with wetland features along a nearby stream and expanding the wooded corridor. To create a healthy wetland ecosystem, they are enhancing the remaining subsoil with composted woodchips and stockpiled topsoil, installing thousands of saplings, shrubs and seedlings, and planting and seeding native grasses and wildflowers.

"Although we follow approved restoration designs, we expect to encounter changes in the field during such an extensive cleanup operation," said Fernald ecologist Eric Woods. "By integrating restoration plans with ongoing cleanup, we can respond quickly to changing field activities without interruption to cleanup or restoration schedules."

This fall, Fernald is conducting multiple restoration projects in remediated areas and non-remediated perimeter areas. This field experience and the ongoing collaboration with engineers and cleanup crews will help ecologists prepare for restoring the former production area, where Cold War workers produced uranium metal for the nation's weapons program.

For more information, contact Pete Yerace on (513) 648-3161, or at pete.yerace@fernald.gov. For a similar story,

see "Hanford's Desert Oasis" in the Winter/Spring 2001 edition of *EM Progress*.

A Clear View: Buildings Razed

For the first time since the early 1950s, workers and visitors at Fernald have an unobstructed south to north view of the 1,050-acre site. Early this fall Fluor Fernald completed demolition of the Safety and Health Building, leaving an open path through the middle of the site where uranium processing plants and support facilities once stood.

Originally built to accommodate a growing production workforce during the Cold War, the Safety & Health Building housed medical, safety and health services for nearly 50 years. Fluor Fernald has relocated health and safety personnel to other administrative facilities onsite to continue servicing the cleanup projects without disruption.

Since 1994, 107 of Fernald's structures have been demolished – 12 during 2002 – and the site is nearing the halfway point of site demolition projects in support of its 2006 closure plan. The next major demolition project is the five-story Pilot Plant, where Cold War workers developed operating prototypes for all phases of Fer-



Workers filled and transported more than 350 roll-off boxes filled with demolition debris from the Safety and Health Building to Fernald's On-Site Disposal Facility for final disposition.

Fernald's Race to Closure, continued on page 11

Fernald's Race to Closure, continued from page 10

nald's production process. Within five months after the Atomic Energy Commission (predecessor to DOE) broke ground for the new uranium-processing site in May 1951, the Pilot Plant began operations.

"The Pilot Plant was the first of the ten major site uranium-processing plants to begin operating, and it will be the last processing plant to be demolished," says DOE Demolition Project Manager John Trygier.

For more information, contact John Trygier on (513) 648-3154, or at john.trygier@fernald.gov

Fifty years after their predecessors built the Fernald facility, craft personnel from the Greater Cincinnati Building and Construction Trades Council are tearing down buildings.

Workers Set Safety Record

Workers from the Greater Cincinnati Building and Construction Trades Council are playing a key role in the remediation and dismantlement of the Fernald Site. And they are doing it safely. The workers recently set a new safety record.

The Council, which represents 400 construction craft workers at the Fernald site, recently reached five million safe work hours without a lost-time accident or injury.

"There isn't another project within the two-state jurisdiction of the Building Trades that has a 10-year, five million man-hour record without a lost-time day from work," said Joe Zimmer, executive secretary for the Council. Since 1992, the Building Trades Council has provided craft services to support environmental remediation and construction projects at the Fernald site.

For more information, contact David Kozlowski on (513) 648-3187, or at david.kozlowski@fernald.gov.



Paducah Celebrates Golden Anniversary

On October 24, Secretary Abraham, Kentucky Governor Paul Patton and the citizens of the

Paducah area commemorated 50 years of operation of the Paducah Gaseous Diffusion Plant (PGDP) with a celebration in downtown Paducah.



Capturing the aura of the 1950s, artist Robert Dafford used an old postcard as the theme for the third and final mural, which commemorated 50 years of operation of the Paducah Gaseous Diffusion Plant. The moniker, Atomic City, was used by many cities across the nation that hosted DOE facilities.

"We want to recognize the tremendous contribution that people from the plant have made to the communities around it," said retired plant manager Howard Pulley, who

headed the celebration committee. "The celebration was not to recognize the companies that ran the plant, but to recognize the people and their contributions."

The main event was the unveiling of three new murals along the Paducah firewall depicting the construction and operation of PGDP. The Paducah Symphony performed a concert on the riverfront of the Ohio River, followed by fireworks.

A video recounting the plant's history in the words of past workers was produced at Paducah Community College and is available to schools throughout Western Kentucky and Southern Illinois. A speaker's bureau was organized to explain the past, present and future of PGDP and the related facilities to groups requesting information.

For more information, contact W. Don Seaborg on (270) 441-6806.

Technology Seals Success at Rocky Flats

An innovative packaging method is making it possible for the Department of Energy's Rocky Flats Environmental Technology Site to more efficiently dispose of massive pieces of slightly contaminated equipment and reduce worker exposure to contamination.

As former weapons production buildings are cleaned out and readied for demolition at Rocky Flats, material such as machining and foundry equipment has to be packaged for shipment to receiver sites for disposal. Much of the equipment does not fit into standard cargo containers. The new InstaCote™ technology creates custom-sized packages for oversized pieces of equipment that eliminate the need to cut up the equipment to fit standard containers.

The InstaCote™ process produces a polymeric coating by combining two reagent mixtures in a spray gun nozzle during application. The mixture, sprayed

onto a prepared piece of equipment, dries into a tough, non-hazardous material with properties that are unchanged by exposure to radiation. The finished product meets the Department of Transportation (DOT) definition of a "strong, tight package," and replaces the use of cargo containers. The only size limitation for this type of package is that it must be able to travel on the road on a flatbed truck in accordance with DOT size limitations for the road.

Tested against various shipping hazards, InstaCote™ retained its strength and ability to protect the environment from radiation. A one-quarter-inch thick layer of the coating was used in

demonstrations of the technology. Rocky Flats routinely uses a coating depth of one-half inch to provide extra assurance. A profile containing the InstaCote™ process recently was approved by the Department's Nevada Operations Office for waste disposal at the Nevada Test Site.

Other advantages of the InstaCote™ technology include faster preparation of contaminated equipment for shipping, reduced volumes of shipments and cost savings from not having to build standard containers for each piece of oversized equipment.

For more information, contact Mariane Anderson at Mariane.Anderson@rf.doe.gov.



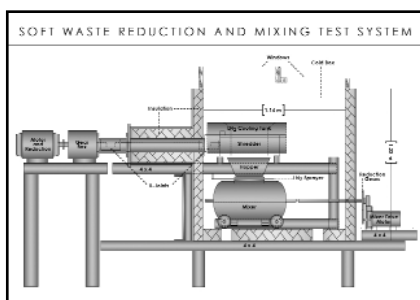
The InstaCote™ technology produces a one-half inch thick "strong, tight package" and replaces the use of bulkier cargo containers.

Rocky Flats Team Earns Patent

A team consisting of DOE employee Glenn Doyle, Kaiser-Hill employee Virgene Ideker, and National Institute of Standards and Technology employee James Siegwath has recently earned a patent for a method and apparatus that should reduce risk to employees.

Rocky Flats and other DOE sites have a large number of waste drums filled with a variety of low-level waste items contaminated with a mixture of radioactive and hazardous chemicals. The challenge was to obtain an accurate, representative sam-

ple of the contents in the drums, required by the Resource Conservation and Recovery Act, to determine disposal criteria and reduce workers' exposure.



Standard sampling methods involved manually cutting pieces off the items at varying depths and locations in the waste drums. This did not always produce accurate or representative results and hazardous materials could be

missed entirely. The team produced a prototype model consisting of a shredder, a mixer, and a remote sampler, all con-

tained in an insulated box. Liquid nitrogen is used to freeze the waste and maintain cryogenic temperatures, allowing the waste material to be shredded into small pieces.

The samples produced by the prototype system were more accurate and representative of the contaminants contained in the drums. In addition to reducing the risk to employees, the new method cuts the waste volume and produces material that is easier to mix with encapsulation media, such as concrete, to prevent leaching into the environment.

The patent approval for the cryogenic waste sampling technique was received in June 2002.

For more information, contact Mariane Anderson at Mariane.Anderson@rf.doe.gov.

Portsmouth Plants for Phytoremediation

Once again, DOE is using nature to clean up contaminants in ground water. Nearly 700 hybrid poplar trees have been planted on the south end of the Portsmouth Gaseous Diffusion Plant with expectation that the ground water contamination will decrease up to 30 percent in the next five years.

Phytoremediation is the process of reducing contaminants through deep root absorption, and the eventual evapotranspiration through the foliage of trees (see Winter/Spring 2002 *EM Progress*). It has proven successful at the Savannah River Site and other DOE sites. The initial fieldwork began in May 2002 to conduct the EPA-approved phytoremediation activities in the trichloroethene-contaminated ground water plume. When completed, approximately 3,000 hybrid poplar trees will be planted in the 30-acre area.

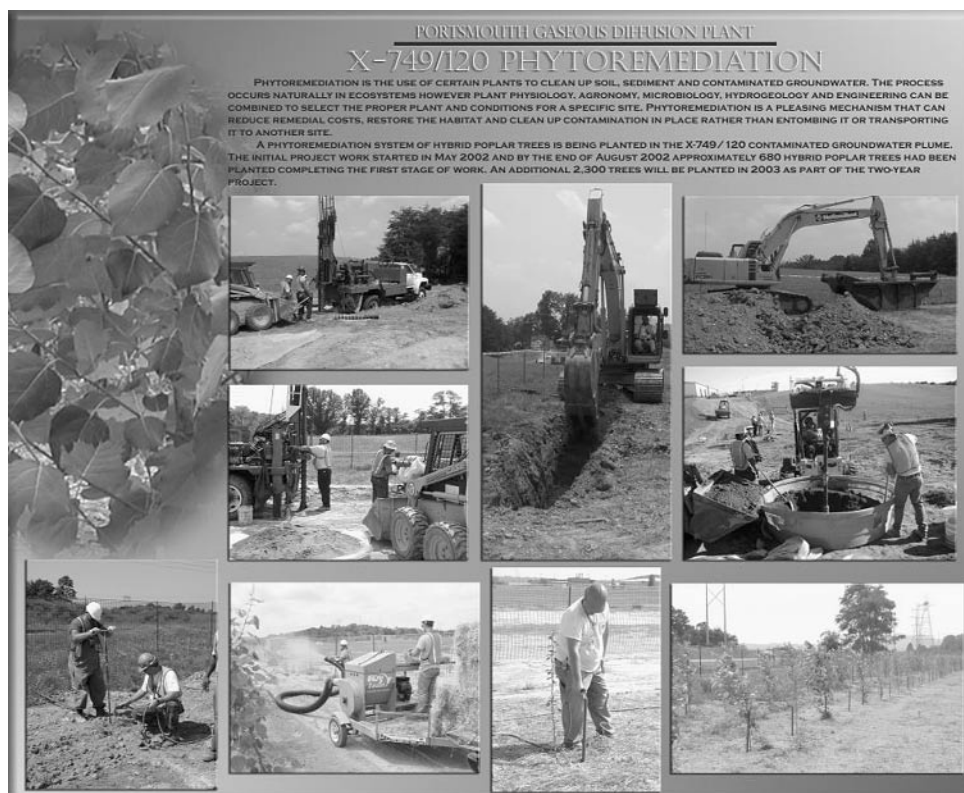
Studies have shown that the root systems of the hybrid poplar may take 50 to 350 gallons of water per tree per day. The trees take up the trichloroethene-contaminated water through their root systems and release trace amounts of the contaminant into the atmosphere through their leaves. The

trichloroethene released from the trees is well below regulatory standards and can be further degraded in the air when exposed to ultraviolet light.

The phytoremediation process reduces costs, restores habitat and cleans up con-

amination without the cost of excavation, constructing new facilities, and shipment of waste offsite.

For information, contact Matt Vick on (740) 897-2089 or Kristi Wiehle on (740) 897-5020.



Portsmouth Continues Shipping its Waste Away

The Portsmouth Gaseous Diffusion Plant (PGDP) continues toward its goal of shipping all its contaminated material to offsite disposal facilities. In Fiscal Year 2002, 6,300 containers (141,000 cubic feet) of waste were transported for treatment and disposal. Nearly 70 percent of the legacy waste inventory has been dispositioned including 18,000 containers shipped in the past three years.

Part of EM's mission plan is to reduce or eliminate the highest risks first. By safely

shipping wastes previously stored outside to offsite disposal facilities, PGDP is doing just that.

One of the projects removed 112,000 cubic feet of low-level waste from an outside storage pad without any accidents. In addition, the site shipped 1,965 55-gallon drums of debris offsite.

Currently, the PGDP is in the process of removing 6,000 tons of low-level contaminated scrap metal. The total scrap metal

inventory has been reduced by 50 percent, with 1,300 tons already shipped and another 1,600 tons cut, packaged and awaiting shipment. This project will be completed in 2004.

Some of the waste was shipped to the Oak Ridge Site in Tennessee, while most of the waste was disposed at the Enviro-care facility in Utah.

For more information contact Melda Rafferty on (740) 897-5521.

SSAB SPOTLIGHT

Advisory Board is Helping Produce Better Decisions at Hanford

In the 1990's the U.S. Department of Energy (DOE) at the Hanford Site entered into a new era of openness, including more meaningful public participation. In 1992, the Future Site Uses Working Group, a diverse group of regional Hanford stakeholders were convened by the Tri-Parties (the State of Washington Department of Ecology, the Department of Energy and the Environmental Protection Agency) to identify "a range of potential uses for the site" and associated cleanup scenarios. The Tank Waste Task Force was convened in 1993 to provide the Tri-Parties with general Hanford cleanup principles and values specific to the retrieval and vitrifying of tank waste.

Based on the dialogue and products from these two groups, the Tri-Party agencies agreed to establish the Environmental Management Site-Specific Advisory Board at Hanford (also known as the Hanford Advisory Board or HAB). The HAB was established as a broadly representative advisory board, which would provide informed consensus recommendations and advice on major Hanford cleanup policy issues. The HAB held its first meeting in January 1994.

"The government makes better decisions when it hears ideas and concerns from its citizens," says Marla Marvin, director of Communications at the Richland Operations Office. "The HAB is Hanford's most valuable public participation forum and definitely helps us make better decisions."

The HAB views itself as the keeper of the Tri-Party Agreement. The Board

works to ensure that the agreement remains a credible document and continues to emphasize cooperation, coordination, and synergy.

With Hanford's recent development of the Accelerated Cleanup Performance Management Plan, the HAB was thrust into quick action.

"The Board has been responsive and timely in responding to urgent requests from DOE for input related to the Hanford Performance Management Plan," says Keith Klein, manager of the Richland Operations Office.

"They provide us good insight and solid advice to improve the plan."

When the Board and the Tri-Party agencies compared priority lists for the upcoming fiscal year, they found the two lists were nearly identical, demonstrating a great deal of consensus concerning the work to be done. A few of the issues the HAB and the agencies will focus on in the upcoming year are:

- Accelerating closure of high-level waste tanks;
- Exploring alternative technologies for low-activity tank waste immobilization;
- Establishing an integrated Hanford ground water strategy;
- Accelerating receipt and shipment of several types of waste;
- Accelerating cleanup of Hanford's central plateau;
- Beginning important risk assessment processes; and

- Linking acceleration plans to project baselines.

Stakeholders and area Tribal governments recognize that DOE is responsible for the final decisions, but the advisory board helps the agencies understand the public's perspective. Experience at Hanford has proven again and again that key cleanup decisions made openly and with full public participation produce not only better decisions, but also decisions that can be implemented.

For more information, visit the Hanford Advisory Board's Web site at <http://www.hanford.gov/boards/hab/index.htm>



The Hanford Advisory Board was established eight years ago to provide advice to the Tri-Party Agreement agencies on Hanford cleanup and waste management. The Board includes representatives of local and regional government, Native American tribes, business interests, workers, the State of Oregon, environmental organizations, public interest groups, and the public-at-large.

Environmental Justice in South Carolina

A Community Leaders Institute meeting held in Blackville, South Carolina in July focused on the relationship between environmental protection, environmental justice, human health and economic development. This first of its kind event in this community was based on the premise that "a critical factor in the success of environmental health programs is a well-informed community," said Blackville Mayor David Kenner.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, ethnicity, culture, income or education level, with respect to the development, implementa-

tion, and enforcement of environmental laws, regulations, and policies. Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work. Blackville, South Carolina, is a disadvantaged community that is working with Federal agencies to better the community.

The goal of the meeting was to give participants information they could use to help their community better the quality of life. The conference focused on com-

munication, collaboration and compassion.

The event featured experts in the environmental health and community relations fields, as well as community leaders and residents. Officials from the Department of Energy, the Environmental Protection Agency and sister State agencies explained to residents that local problems need local solutions.

"I just wanted to empower the community," reiterated Mayor Kenner, adding that many area and Statehouse leaders attended the forum to hear the ideas.

For more information, contact Melinda Downing on (202) 586-7703.

Advisory Board Role Extolled in New Book

In *Determining Our Environments: The Role of Department of Energy Citizen Advisory Boards*, author Walter Williams examines the efforts of the Department of Energy to incorporate citizen participation in the administrative process. The book focuses on DOE's use of the advisory board in its waste management and environmental restoration programs. Williams explores the role of the Environmental Management Site-Specific Advisory Board at Fernald in shaping policy and environmental cleanup at the Fernald Environmental Management Project from the board's inception to its present-day activities.

For more information, contact Gary Stegner on (513) 648-4899.

Radioactive Material Transportation Manual Approved by Secretary Abraham

On September 23, 2002, the *Radioactive Material Transportation Practices Manual* (DOE M 460.2-1) was signed by Secretary Abraham. This Manual establishes a set of standard transportation practices for U.S. Department of Energy (DOE) programs to use in planning and executing offsite shipments of radioactive materials including radioactive waste.

To obtain a copy of the manual, you may visit the DOE Directives Web Site at www.doe.directives.gov, or call the Center for Environmental Management Information on (800) 736-3282.

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